

DOWD, J.

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF OHIO  
EASTERN DIVISION

RAYCO MANUFACTURING, INC.,	)	
	)	CASE NO. 5:08-CV-0074
Plaintiff,	)	
	)	
v.	)	<b><u>MEMORANDUM OPINION</u></b>
	)	<b><u>AND ORDER</u></b>
DEUTZ CORPORATION, <i>et al.</i> ,	)	
	)	
Defendants.	)	

Before the Court are Plaintiff Rayco Manufacturing, Inc.'s motions in limine to exclude the testimony and reports of Defendants' experts Robert M. Kuhn and Peter J. Weller. ECF Nos. 249 & 250, respectively. Defendants have opposed the motions in limine. ECF Nos. 281 & 283, respectively.

For the following reasons Plaintiff's motion in limine to exclude the testimony and reports of Robert M. Kuhn (ECF No. 249) is DENIED, and Plaintiff's motion in limine to exclude the testimony and reports of Peter J. Weller (ECF No. 250) is GRANTED IN PART AND DENIED IN PART.

**I. Relevant Background**

**A. The Parties**

Plaintiff Rayco, an Ohio corporation located in Wooster, Ohio, manufactures and sells specialized equipment for the landscape and forestry industries, including different types of tractor crawlers. Rayco does not manufacture engines. As a result, Rayco purchases engines to power the equipment it manufactures.

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Rayco purchased diesel engines manufactured by defendant Deutz AG and sold through defendant Deutz Corporation for approximately 20 years. The transactions giving rise to this suit began in late 2001, when Rayco began purchasing Defendants' 82 hp BF4M1011F engine (hereafter the "1011 engine") for use in Rayco's C85 Series crawlers. Through early 2004, Rayco purchased a total of 131 of the 1011 engines for use in its C85 Series crawlers. Rayco experienced no significant problems with the 1011 engines in the C85 applications.

In early 2004, Defendants discontinued their 1011 engines and replaced them with the 87 hp BF4M2011 engine (hereafter the "2011 engine") to meet federal EPA Tier 2 emission standards. Rayco discontinued manufacturing its C85 Series crawlers and began producing its C87 Series crawlers powered by the Deutz 2011 engines. The C87 crawlers were built with steel tracks for use in rugged terrain. According to Rayco, the Defendants were involved in the selection of the 2011 engine for use in the C87 crawlers. One of the C87's applications was as a forestry mower. Forestry mowers are used for land clearing and commercial vegetation control, and for cutting and mulching vegetation in difficult terrain. The Rayco literature regarding the C87's forestry mower application provided that the machine could be used to mulch trees 4-6 inches in diameter.

Rayco purchased 551 of the 2011 engines for use in the C87 crawlers. Of those, 468 of the 2011 engines complied with EPA's Tier 2 emission standards. In late 2004 and early 2005, Rayco received reports that a number of C87 Tier 2 2011 engines failed due to overheating. Between December 2004 through late 2008, approximately 117 of 468 (25%) of the 2011 Tier 2 engines installed in C87 crawlers failed.

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Defendant Deutz often replaced the failed engines under warranty with the same Deutz engine. Some C87 operators and owners also experienced failures of the replacement engines.

**B. The Engine Failures**

Basically, the problems with the Deutz engines in this case resulted from overheating. Plaintiff's expert, Dr. Dennis Guenther, prepared a report which reflects that he examined a number of the failed engines and the failures observed—melted pistons and scored cylinders—are the “result of overheating.” Deutz's warranty claim forms for failed engines for the C87 and FTX90 reflect scored and melted pistons, and overheating. However, the parties dispute the cause of the overheating.

Dr. Guenther states in his report states that the engines he examined failed as a result of overheating and he identifies a number of factors that are “candidates” for the cause of the engine failures, including the operation of the engine's kill switch, entrained air in oil, cooling capacity of the system, and overfueling.<sup>1</sup> After this analysis, however, Guenther concludes that “[b]ased on research conducted to date, a specific root cause of the engine failures cannot be determined. There are a number of candidates related to the design of the engine and a number of candidates related to the application of the engine in the Rayco crawler.” ECF No. 167.<sup>2</sup>

Deutz's expert, however, expressed no such uncertainty regarding the reason for the

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<sup>1</sup> Guenther identified a number of reasons for overfueling, including operating the engine at low RPMs. *See* ECF No. 167; Guenther Depo., ECF No. 158-2 at 162-66.

<sup>2</sup> Also present in the record are documents by known and anonymous Deutz authors discussing the same “candidates” for overheating that were the subject of Guenther's expert report, but like Guenther, none conclude that these “candidates” were the cause of the engine failures.

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engine failures at issue. Robert Kuhn concludes in his expert report that “[t]he damage seen to the subject engines is the result of drooping or lugging the engine for extended periods below its intended operating rpm. This operating condition was clearly understood and designed against by Rayco in the RG90 application of the 2011 engine.” ECF No. 138-13. Engine lugging is engine overloading, and overloaded engines operate at too low of engine speeds, causing the engines to overfuel and a build up of heat that can damage an engine to the point of failure.<sup>3</sup> The Defendants argue that lugging and overloading the engine is an improper use and/or abuse of the engine, and the cause of the engine failures for which they are not responsible.

Additionally, Defendants seek to introduce the testimony of Peter J. Weller, a hydraulics expert. Weller opines on the design of the crawler’s hydraulic system based on pressure readings taken from that system. The Court previously granted partial summary judgment in favor of the Defendants and this case was scheduled for trial to commence on May 31, 2011. On the eve of trial, Plaintiff filed the above mentioned motions in limine.

## **II. Law and Analysis**

Federal Rule of Evidence 702, provides the following:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if

- (1) the testimony is based upon sufficient facts or data,
- (2) the testimony is the product of reliable principles and methods, and
- (3) the witness has applied the principles and methods reliably to the facts of the

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<sup>3</sup> Operating the engine at low RPMs results in overfueling, and therefore overheating, of the engine. *See* ECF No. 167; Guenther Depo., ECF No. 158-2 at 162-66.

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case.

In *Daubert*, the United States Supreme Court held that Rule 702 requires district courts to ensure that expert testimony “both rests on a reliable foundation and is relevant to the task at hand.” *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 597 113 S.Ct. 2786 (1993). In *Kumho Tire Co.*, the Supreme Court expanded *Daubert*’s analysis of expert scientific testimony to cover expert testimony based on “technical” and “other specialized knowledge.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 119 S.Ct. 1167 (1999). Thus, Rule 702 imposes a “gatekeeping” duty on district courts, which must exclude unreliable and irrelevant evidence. *Daubert*, 509 U.S. at 589; *Kumho Tire Co.*, 526 U.S. at 147. In other words, an expert’s opinion must be “more than subjective belief or unsupported speculation.” *Daubert*, 509 U.S. at 589. When ruling on the admissibility of expert opinion evidence, the trial court has broad discretion.

Under Federal Rule of Evidence 702, “[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify” if the witness’s testimony is “based upon sufficient facts or data, . . . is the product of reliable principles and methods, and the witness has applied the principles and methods reliably to the facts of the case.” Fed.R.Evid. 702. “Determining the admissibility of expert testimony pursuant to Rule 702 entails a flexible inquiry.” *Rose v. Truck Centers, Inc.*, 388 F. App’x 528, 533 (6th Cir.2010). “[U]nder *Daubert* and its progeny, a party proffering expert testimony must show by a preponderance of proof that the expert whose testimony is being offered is qualified and will testify to scientific knowledge that will assist the trier of fact in understanding and

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disposing of relevant issues.” *Sigler v. Am. Honda Motor Co.*, 532 F.3d 469, 478 (6th Cir.2008).

Plaintiff argues that Defendants’ experts Robert M. Kuhn and Peter J. Weller are not qualified to render opinions on the relevant issues in this case, that their respective opinions are not derived using reliable scientific principles or methods and that Weller’s opinions are not particularly relevant. ECF Nos. 249 & 250. Accordingly, Plaintiff asks the Court to exclude both experts’ respective testimony and reports. Defendants have opposed both motions. ECF Nos. 281 & 283, respectively.

**A. Kuhn’s Qualification to Testify as an Expert**

In order to qualify as an expert under Rule 702, a witness must establish his or her expertise by reference to “knowledge, skill, experience, training, or education.” Fed.R.Evid. 702. “Although this requirement is typically treated liberally, a witness is not an expert simply because he claims to be.” *Rose*, 388 F. App’x at 533. “The issue with regard to expert testimony is not the qualifications of a witness in the abstract, but whether those qualifications provide a foundation for a witness to answer a specific question.” *Berry v. City of Detroit*, 25 F.3d 1342, 1351 (6th Cir. 1994).

Plaintiff does not dispute that Kuhn is an engineer who is an expert in diesel engines, but claims that his expertise is limited to diesel engines in passenger vehicles, and that the work environment and demands on diesel engines in forestry mowers is so different from that of a passenger vehicle that Kuhn lacks the specialized knowledge and experience to testify concerning the cause of the diesel engine failures in the C87 application. However, Kuhn’s declaration states that he has analyzed diesel engine failures in “off-highway construction

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equipment including John Deere backhoes, tractors, bulldozers, scrapers, loaders, and mini-excavators as well as Hamm rollers, Mustang skid steers, Case skid steers, Volvo dumpers, and Caterpillar bulldozers. Many of these machines are like the C87 in that the principal function (i.e. the bucket on a loader of the mulching attachment) is operated by a hydraulic system that is pressurized with pumps that are powered by the engine.” ECF No. 281-3.

The Court concludes that Kuhn’s training and qualifications regarding diesel engines in the heavy equipment described in his declaration relate to the subject matter of his proposed testimony with respect to the diesel engine failures in the C 87 application.

**B. Reliability of Kuhn’s Conclusions**

Federal Rule of Evidence 702 requires an expert witness to testify as to “scientific, technical, or other specialized knowledge.” Fed.R.Evid. 702. As the Supreme Court in *Daubert* noted, this requirement establishes a standard of “evidentiary reliability” or “trustworthiness.” *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590 n.9, 113 S.Ct. 2786, 125 L.Ed.2d 469, (1993). District courts must determine whether “the principles and methodology underlying the [proffered expert’s] testimony itself are valid.” *Pride v. BIC Corp.*, 218 F.3d 566, 577 (6th Cir.2000).

Expert testimony may not be based on mere speculation. *McLean v. 988011 Ontario, Ltd.*, 224 F.3d 797, 800–01 (6th Cir.2000). Moreover, any assumptions made must be supported by evidence in the record. *See Sigler*, 532 F.3d at 481–82. An expert’s conclusions regarding causation must have a factual basis and cannot be premised on mere suppositions. *McLean*, 224 F.3d at 801. “[M]ere ‘weaknesses in the factual basis of an expert witness’ opinion . . .

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[however,] bear on the weight of the evidence rather than on its admissibility.” *Id.* (quoting *United States v. L .E. Cooke Co.*, 991 F.2d 336, 342 (6th Cir.1993)) (alteration in original). In *Daubert*, the Court set out several factors to be considered in determining whether an expert’s testimony is reliable: the ability to test the expert’s hypotheses, whether the expert’s methodology has been subjected to peer review and publication, the known or potential rate of error with respect to the expert's methodology, and whether the methodology is generally accepted in the scientific community. *Daubert*, 509 U.S. at 593–94; *Rose*, 388 F. App’x at 533. The *Kumho* Court also made clear that the factors listed above do not constitute a “definitive checklist or test,” particularly in the engineering context. *Kumho Tire Company*, 526 U.S. at 150.

Plaintiff argues that Kuhn’s conclusions are devoid of any scientific principles or methods because Kuhn did not examine or test any failed engines, or examine witnesses to any engine failures to determine how the crawler was being used when the engine failed. Rather, plaintiff contends that Kuhn merely reviewed deposition testimony, documents, and photographs of failed engines taken by Deutz, and selectively used some evidence to arrive at his conclusions while ignoring evidence that did not support his conclusion.

Rayco acknowledges that Kuhn observed the operation of a crawler by a Deutz employee on two separate occasions which included lugging and overloading the engine, but that the engine did not fail as a consequence of those demonstrations. Further, Plaintiff points out that Kuhn’s conclusions regarding the diesel engine failures focus on the deposition of operator Aaron Taylor who testified that he sometimes operated his engines at low rpm’s, but that Kuhn’s



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conclusions ignore the testimony of five other operators (Dukes, Cole, Orban, Howard and Gourley) who state that they never operated their engines at low rpm's, but their engines still failed. As a consequence, Plaintiff concludes that Kuhn's conclusions are not supported by sufficient facts and that there are facts in evidence which contradict Kuhn's analysis and therefore render his opinion unreliable and inadmissible.

For his supplemental report, Kuhn considered the depositions and declarations of Chris Howard, Aaron Taylor, Thomas Cole, John Dukes and John Orban. Further, Kuhn measured engine exhaust temperatures and engine speed of a FTX-90 as it mulched bushes and trees. The graphical depiction of the measurements reflects that engine exhaust temperatures are inversely proportional to engine speed. *See* ECF No. 281-1. Similar measurements, though under different conditions, were made by Plaintiff's expert, Dennis Guenther, and he agrees that low engine speeds results in high exhaust gas temperatures. *See* ECF No. 281-2 at 164-65.

Further, Kuhn applied well-known principles regarding diesel engine function to the facts in this case to arrive at his opinion. Kuhn's analysis of the effect of "dusting" and lugging on diesel engine operation are well-known and is the same position taken by Plaintiff's expert. *See* ECF No. 281-2 at 162-73. Further, Plaintiff's argue that Kuhn's conclusions are not sufficiently supported by the facts of the case because Kuhn ignored the testimony of certain users that they did not run the engines at low rpm's. However, Kuhn's supplemental report considers the testimony of these users and specifies that either lugging, dusting, low oil levels, and/or blocked airflow were the causes of the overheating of their engines.

The Court concludes that Kuhn applied reliable principles and methods to the facts of the

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case to arrive at his conclusions. To the extent that Plaintiff argues that Kuhn's conclusions are not sufficiently supported by record, that is a matter for cross-examination rather than the exclusion of Kuhn's testimony. *Rose v. Truck Centers, Inc.*, 611 F. Supp.2d 745, 751 (N.D. Ohio 2009) (quoting *McLean v. 98801 Ontario Ltd.*, 224 F.3d 797, 801 (6th Cir. 2000)).

**C. Weller's Qualification to Testify as an Expert**

In order to qualify as an expert under Rule 702, a witness must establish his or her expertise by reference to "knowledge, skill, experience, training, or education." Fed.R.Evid. 702. "Although this requirement is typically treated liberally, a witness is not an expert simply because he claims to be." *Rose*, 388 F. App'x at 533. "The issue with regard to expert testimony is not the qualifications of a witness in the abstract, but whether those qualifications provide a foundation for a witness to answer a specific question." *Berry v. City of Detroit*, 25 F.3d 1342, 1351 (6th Cir.1994).

Here, the relevant inquiry is whether Weller is qualified to testify regarding: (1) what caused the engines at issue to fail; (2) whether the design and engineering of the crawlers at issue was appropriate; and (3) whether the design and engineering of the hydraulic system at issue was appropriate, specifically with regard to whether that system could contribute to failure of the engines at issue.

There is no dispute that Weller is an expert in hydraulic systems. Plaintiff, however, contends that Weller is not qualified to opine on the hydraulic system used in a machine like the crawler at issue. The Court finds that Weller's credentials support his ability to qualify as an expert who may testify and opine on the hydraulic system at issue. *See* ECF No. 250-1 at 21-27

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(CV of Peter J. Weller). Mr. Weller's experience and qualifications with hydraulic systems that are used on heavy equipment "provide [him] with a foundation . . . to answer . . . specific question[s]" about the hydraulic system at issue. *Smelser v. Norfolk Southern Ry. Co.*, 105 F.3d 299, 303 (6th Cir.1997).

Mr. Weller's credentials do not relate specifically to what caused the engines at issue to fail nor whether the overall design and engineering of the crawlers at issue was appropriate. Weller admitted numerous times during his deposition that he is not an expert on diesel engines nor has he had experience designing heavy equipment. His experience lies in the design and engineering of hydraulic systems for such equipment and therefore, the Court limits his opinions to just that.

**D. Reliability of Weller's Conclusions**

Federal Rule of Evidence 702 requires an expert witness to testify as to "scientific, technical, or other specialized knowledge." Fed.R.Evid. 702. As the Supreme Court in *Daubert* noted, this requirement establishes a standard of "evidentiary reliability" or "trustworthiness." *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590 n.9, 113 S.Ct. 2786, 125 L.Ed.2d 469, (1993). District courts must determine whether "the principles and methodology underlying the [proffered expert's] testimony itself are valid." *Pride v. BIC Corp.*, 218 F.3d 566, 577 (6th Cir.2000).

Expert testimony may not be based on mere speculation. *McLean v. 988011 Ontario, Ltd.*, 224 F.3d 797, 800-01 (6th Cir.2000). Moreover, any assumptions made must be supported by evidence in the record. *See Sigler*, 532 F.3d at 481-82. An expert's conclusions regarding

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causation must have a factual basis and cannot be premised on mere suppositions. *McLean*, 224 F.3d at 801. “[M]ere ‘weaknesses in the factual basis of an expert witness’ opinion . . . [however,] bear on the weight of the evidence rather than on its admissibility.’” *Id.* (quoting *United States v. L.E. Cooke Co.*, 991 F.2d 336, 342 (6th Cir.1993)) (alteration in original). In *Daubert*, the Court set out several factors to be considered in determining whether an expert’s testimony is reliable: the ability to test the expert’s hypotheses, whether the expert’s methodology has been subjected to peer review and publication, the known or potential rate of error with respect to the expert’s methodology, and whether the methodology is generally accepted in the scientific community. *Daubert*, 509 U.S. at 593–94; *Rose*, 388 F. App’x at 533. The *Kumho* Court also made clear that the factors listed above do not constitute a “definitive checklist or test,” particularly in the engineering context. *Kumho Tire Company v. Carmichael*, 526 U.S. 137, 150, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999).

Weller studied and took pressure readings from the hydraulic system at issue to calculate gross and net power ratings. He compared those readings and the company specifications of the crawlers hydraulic system with those of comparable machines. He based his conclusions and opinions on the above mentioned analysis. Given that the Court limited Weller’s opinions to that of the hydraulic system, his opinions concerning that system are not be based on mere speculation. *McLean*, 224 F.3d at 800-01. Any perceived “‘weaknesses in the factual basis of [Weller’s] opinion[s] . . . [however,] bear on the weight of the evidence rather than on its admissibility.’” *McLean*, 224 F.3d at 801 (quoting *United States v. L.E. Cooke Co.*, 991 F.2d 336, 342 (6th Cir.1993)) (alteration in original). Given that, counsel may cross-examine Weller

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concerning the “trustworthiness” of his methodology. *Rose v. Truck Centers, Inc.*, 611 F. Supp.2d 745, 751 (N.D. Ohio 2009) (quoting *McLean v. 98801 Ontario Ltd.*, 224 F.3d 797, 801 (6th Cir. 2000)).

The Court concludes that Weller meets the *Daubert* standard requiring “reasoning and methodology” that is “scientifically valid.”

**E. The Usefulness or Relevancy of Weller’s Opinions**

In addition to the element of reliability, the Court must also examine relevance. “Relevance” relates to the “fit” of the testimony, that is, “whether the reasoning or methodology properly can be applied to the facts in issue [.]” *Daubert*, 509 U.S. at 593, so as to assist the trier of fact.

Providing the jury with an understanding of how the hydraulic system in the machines at issue works will certainly assist the trier of fact in this matter. Further, an explanation of the amount of power that is used by the hydraulic system in the machines at issue will also assist the trier of fact with applying that information to the information provided by experts who opine on the operation of the engines at issue. The pressure measurements taken by Weller and his opinions regarding the hydraulic system are applicable to the operation of the crawler machines and will provide the jury with some level of understanding that operation.

The Court concludes that Weller’s report and opinions, as limited by the Court, meet the requirement of relevance.

**III. Conclusion**

For the aforementioned reasons, Plaintiff’s motion in limine to exclude the testimony and

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reports of Robert M. Kuhn (ECF No. 249) is DENIED, and Plaintiff's motion in limine to

exclude the testimony and reports of Peter J. Weller (ECF No. 250) is GRANTED IN PART  
AND DENIED IN PART.

IT IS SO ORDERED.

May 31, 2011  
Date

/s/ David D. Dowd, Jr.  
David D. Dowd, Jr.  
U.S. District Judge